DOCUMENT RESUME

ED 204 898 EC 133 365

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TITLE Instructional Models for Teaching Reading to Disadvantaged Educable Mentally Retarded Adolescents.
PUB DATE Feb 81
NOTE 27p.: Paper presented at The Council for Exceptional Children Conference on The Exceptional Black Child (New Orleans, LA, February, 1981, Session B-19).

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS Disadvantaged Youth: Inner City: Junior High Schools: *Mild Mental Retardation: Models: Program Effectiveness: *Reading Instruction: *Remedial Reading: *Resource Room Programs: *Tutorial Programs

ABSTRACT

The study investigated three models--the traditional classroom reading instructional model, a one to one tutorial model, and a reading resource center model--for providing reading instruction to 110 disadvantaged inner city children in junior high school educable mentally retarded (EMR) classes. The effectiveness of programmed instructional materials was also examined. The sample was divided into four experimental groups (EMRs assigned to individualized tutoring, EMRs assigned to the reading resource center, transition Ss assigned to individualized tutoring, and transition Ss assigned to the reading resource center) and two control groups (EMRs receiving no additional help and transition students receiving no additional help). Findings revealed that both experimental groups assigned to the resource class performed significantly better than did the control group: and because the posttest mean for the experimental tutoring groups was higher than the mean score of the experimental resource groups it can be inferred that the tutorial groups also performed better than the control groups. (SB)

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INSTRUCTIONAL MODELS FOR TEACHING READING TO DISADVANTAGED EDUCABLE MENTALLY RETARDED ADOLESCENTS

by

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"PERMISSION TO REPRODUCE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY
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The primary focus of this presentation will be an examination of various models utilized successfully to teach a group of adolescents to read more efficiently. The models to be described include: individualized tutoring and the utilization of programmed instructional material. Research data gathered during a study of 110 black students enrolled in a large inner city school will also be presented.

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INTRODUCTION

As legislators began to respond to increased pressures from parents of both Negro and Mexican American children assigned to classes for the educable mentally retarded throughout California, more than 13,000 children were re-tested and returned to regular class placements. It's perhaps ironic that a new educational controversy developed around the question of how best to facilitate, for this large group of children, the successful transition from special class placement to regular classes. Attempts to solve this complex educational-social-political problem resulted in the creation of a new categorical group of exceptional children - transitional EMR's.[1]

Although the legislature provided limited funding for programs supporting transitional children, only eight percent of the state's school districts applied for available money. However, the lack of action or interest expressed by school districts inaccurately reflects the possible magnitude of the educational problem. The already socially sensitive problem of school failure among black and brown children, particularly those labeled disadvantaged, could become an even more volatile issue for California's educators if hundreds of so-called "normal children" demonstrate marked failure once returned to regular classes.

Much of the existing research literature suggests that successful reading performance is a reliable indicator of school success. The assumed

1. EMR refers to educable mentally retarded minors as defined in the Education Code of the State of California (Ed C 6901 and Ed C 6902). Transition EMR's are those children who have had at least one-year placement in a class for educable mentally retarded children as designated by the State of California Education Code; and who have been tested out of such classes on the basis of state mandated procedures (SB 33 1970) and are now enrolled fulltime in regular class programs for intellectually normal children.

relationship between reading ability and school success provided the rationale for the development of a support program for educable mentally retarded children that began with systematic reading instruction.

Increasingly, reading instruction has become the focal point for discussion by concerned parents, teachers, and often children themselves. Reading continues to be the primary academic skill emphasized by teachers of educable mentally retarded children. It is obvious that reading ability is essential for school success. It is also critical for meeting the everyday demands of adulthood.

Research literature relative to methods of teaching the mentally retarded to read suggests that reading disability is often complicated by the poor quality of language development, limitations of deprived environments, and a poor self-image resulting from years of "reading failure" (Dunn, 1967; Kirk & Johnson, 1951; Stock, 1940).

The immediate need to upgrade the quality of reading instructional programs is rarely questioned. However, the most effective methodological approach remains considerably less clear. Existing literature suggests that no method is superior to others (Ainsworth, 1959; Capobianco & Funk, 1958; Daly & Lee, 1960; Kirk, 1933; Woodstock, 1967).

The First Grade Reading Studies conducted by the U.S. Office of Education (1966) suggested thatthe teacher represented the most important single variable in any reading program. In addition to finding that no single method was systematically superior, they also reported that an electic approach appeared most effective. Of the 30,000 children involved in the national study, all members of the experimental groups made significantly greater gains than did subjects in the control groups. The results indicated that the critical

factors were a combination of teacher personality and systematic emphasis on reading skills.

The primary focus of this study was to investigate various models for providing reading instruction to disadvantaged inner-city children enrolled in, or previously enrolled (transition) in EMR classes. The models investigated included: the traditional classroom reading instructional model; a one-to-one tutorial model; and a reading resource center model. The study also investigated the effectiveness of using programmed instructional materials to remediate reading difficulties. The resource center was equipped entirely with programmed materials and teaching machines. Additionally, the investigation attempted to compare the reading performance of EMR children with the reading performance of transitional children.

METHODS AND PROCEDURES

Selection of Subjects

The project initially included 110 pupils enrolled at George Washington Carver Junior High School, a predominately black school with an enrollment of approximately 1900 children, located in south central Los Angeles. As is typical of inner-city schools, the children were from homes representing the lower socio-economic stratum of the Los Angeles population. Seventy-two Ss had been labeled educable mentally retarded (EMR) by Los Angeles Unified School District personnel. These children were enrolled in EMR classes for all academic instruction. The remaining thirty-eight Ss were "transitional" EMR's returning to regular class placement.

The sample was divided into six groups; four experimental and two control. Eighty-six of the subjects were male. Forty-three Ss were seventh grade pupils, thirty-seven were eighth grade, thirty were enrolled in ninth grade. Table 1 shows the distribution of subjects to various treatment programs.

Selection Criteria

The thirty-eight transitional Ss were randomly selected and randomly assigned to treatment programs. EMR's were also randomly assigned to treatment programs. However, because of scheduling difficulties, "intact" pre-existing EMR class groups were selected from six EMR social studies classes. From those six groups consisting of twelve students each, twenty-four students were randomly assigned to one-to-one tutoring and designated Experimental Group 1. Twenty-four students were assigned to the reading resource center and were designated Experimental Group 2. Twenty-four students who received

TABLE 1

INITIAL DISTRIBUTION OF SUBJECTS

Treatment	EMR_{G1}	Transition $_{G2}$
Tutorial T_1	$E_1 = 24$	$E_3 = 13$
Resource Center T_2	$E_2 = 24$	$E_4 = 13$
Traditional T_3	$C_1 = 24$	$C_2 = 12$
Total	72 Ss	Total 38 Ss

no additional reading instruction beyond traditional classroom instruction provided by Carver's teachers were designated Control Group 1.

Experimental Group 3 consisted of thirteen transition students assigned to one-to-one tutoring. Experimental Group 4 consisted of the thirteen transitional students assigned to the reading resource center. Control Group 2 consisted of twelve transitional students who only received traditional classroom instruction.

In summary, the sample was divided into six groups: four experimental and two control.

Four Experimental Groups

E_1 = 24 EMR's assigned to individualized tutoring.

E_2 = 24 EMR's assigned to programmed reading instruction.

E_3 = 13 transition pupils assigned individualized tutoring.

E_4 = 13 transition pupils assigned to programmed reading.

Two Control Groups

C_1 = 24 EMR's identified for project but received no additional help.

C_2 = 12 transition pupils identified for project but received no additional help.

Treatment

All subjects were tested upon entry to the project using the following instruments:

1. The California Test of Basic Skills
   (Group Achievement Test) Level 1 form Q

Two subtests were administered; Reading Vocabulary and Reading Comprehension.

2. The Gates-McKillop Reading Diagnostic Test Form 1
   (Individual Reading Test) The entire battery was administered.

3. Placement tests developed by publishers of various programmed reading systems.

4. The California Test of Basic Skills Level 1 Form R was given as post test battery. Again only two subtests, reading vocabulary and reading comprehension, were administered.

The California Test of Basic Skills (CTBS)[1] was used as a pre and post post test measure to define both reading ability and reading gains made by each subject. The Gates-McKillop was given as a pre-test only and was used primarily as a diagnostic instrument for prescriptive purposes. Placement tests for programmed materials were administered to those Ss assigned to the resource center. Data obtained from placement tests was also used for diagnostic purposes by the tutors as an additional aid in selecting the most appropriate programmed materials to use for a given child.

Subjects assigned to experimental groups received reading instruction, in addition to that available in regularly assigned classes, twice weekly for 45 minute periods per day. Instruction was provided by graduate students from California State University, Los Angeles, Department of Special Education. All of the graduate students were teaching candidates in the area of Mental Retardation and many were working towards the Standard Teaching credentials in addition to certification in retardation.

Reading Instruction Models

Two models for reading instruction were established. The Reading Resource Lab utilized commercially available programmed reading materials and teaching machines. Materials housed in the Lab included:

1. Analysis of covariance revealed the correlation between CTBS pre/post test scores was .8236 with 1,59 d.f. at .6 level.

1. The Borg-Warner Systems 80 Machine and complete reading program.
2. Electronic Futures Incorporated, Phonics I and Phonics II.
3. Electronic Futures Incorporated, Mini-Systems' Basic Reading Program.
4. SRA Development Reading Lab Series I and II.
5. Sullivan Associates Programmed Reading Program, Series I, II, and III.
6. The Hoffman Corporation complete Reading Program.
7. Educational Development Laboratories, Controlled Reader Story (complete set); The EDL Tach-X Controlled Reader; EDL Aud X Projector and Aud-X Sampler Programs.

Based on a comprehensive evaluation of the child's reading ability, tutors prescribed a reading program that included oral reading, silent reading and word attack skills. Coincidently, tutors were required to combine component lessons of several programs for a more comprehensive package. For example, a typical program for a child placed in a Sullivan programmed reader for silent reading, would include placement on Borg Warner's "Systems 80" materials for word attack skills and the EDL Controlled Reader series for reading fluency.

Individualized Tutoring, the second instructional model, was conducted by tutors, graduate students, trained to utilize the following methods of teaching reading:

1. A Language Experience approach as described by Van Allen (1963).
2. A Basal Reader approach using traditional series.
3. A Tactile Kinesthetic approach as developed by Fernald (1943).
4. The Neurological Impress Method as developed by Hecklman (1962).
5. An Individualized Reading approach as described by Barbe (1961), Dolch (1961), and Veatch (1959).

Tutors were encouraged to use an electric approach as opposed to concentrating on one "best" method. However, they were given complete freedom with regards to the selection of methods, procedures, and materials. Again, selection of the above was based on a comprehensive evaluation of the child's reading ability.

Each tutor, with direction provided by college supervisors, developed individualized reading programs for subjects in experimental groups.

Project Staff

The project staff, in addition to tutors, included:

1. The Project Director, who served as general supervisor of all personnel, program direction, and training activities, was a faculty member of CSULA's Department of Special Education.
2. Two Graduate Student Assistants were assigned to work five hours per day for a minimum of 10 hours per week. Each supervised one of two project centers, the tutorial lab and the resource lab. Each became familiar with the various programmed systems and materials, the concept of individualizing instruction, and the techniques of prescriptive teaching.
3. An evaluator was selected to conduct pre and post testing. A black graduate student in Psychology, was hired to collect test data. Because of time pressures, the two Graduate Assistants were trained to administer both the CTBS and the Gates-McKillop.

RESULTS

Data were collected on a test-retest model. An interval of eight months elapsed between the administration of test batteries. Pre-existing classrooms were assigned to treatment cells, thus making it impossible to randomly assign all subjects. Therefore, to control for any built-in sample biases, treatment of the data included:

1. An analysis of co-variance utilizing a computer program developed at the University of Chicago[1]; a program that facilitates treatment of balanced and/or unbalanced designs and unequal cell sizes.
2. A multiple regression analysis was also utilized to statistically handle the various subtest scores, grade level, number of treatment hours, and rater scores. A 3 x 2 factorial experiment was run (factor 1 = treatments; factor 2 = groups).

Incidentally, an examination of pretest mean scores revealed the pre-test scores of both control groups (EMR and transitional) were higher than those of each of the four experimental groups.

The resulting pre-post test mean scores for each group are listed in Table 2. Combined cell mean scores are also included for posttest scores for the purpose of comparing between group scores.

The resultant findings revealed that both experimental groups assigned to the Resource Lab performed significantly better than did the control group (Resource T_3 vs. Control T_1 $F = 3.89$, $df = 1,59$, $p < .05$, level of significance .05). Because the posttest mean for the experimental tutoring groups (T_2)

1. University of Chicago: Univariate and Multivariate Analysis of Variance, Covariance, and Regression. Version 4. June, 1968.

TABLE 2

MEAN SCORES DERIVED FROM CALIFORNIA TESTS OF BASIC SKILLS [a]

Pretest Mean Scores			
	EMR G_1	Transition G_2	
Control T_1	2.479	2.885	
Tutorial T_2	1.805	1.499	
Resource T_3	1.646	1.949	
Posttest Mean Scores			**Combined Cell Means**
Control T_1	1.933	2.572	2.253
Tutorial T_2	2.557	2.619	2.588
Resource T_3	2.464	2.448	2.456
	$G_1 = 2.318$	$G_2 = 2.547$	

a Mean scores based on Vocabulary Reading and Reading Comprehension subtests; scores represent reading grade placement.

was higher than the mean score of the experimental resource groups (T_3) it can be inferred that the tutorial groups also performed better than the control groups. It should be noted, however, that the group mean score for the transitional control group may be misleading. On the surface, the reported figures suggests a significant drop between pre and post test scores. Further investigation revealed that within this group (transitional control), the five subjects scoring highest on pre test CTPS dropped out of the transition program before June. There is little question that their absences influenced the relatively low mean score for this group.

The difference between the performances of the two experimental groups (T_2 and T_3) was not statistically significant ($F = .66$, $df = 1,59$, $p < .419$). And interestingly, the results failed to reveal statistical evidence of differences between the EMR's and transition pupils ($F = 2.07$, $df = 1,59$, $p < .155$).

Of the original 110 subjects entering the project, only 66 could be located for final testing in June. It should be noted, however, that 12 of the missing subjects were officially absent from school for periods in excess of two weeks. A total of 32 subjects were dropped from the project during the school year. The following summary explains the absences of those subjects during posttest sessions:

Reason	No. of Ss
1. Documented illness (2 broken legs; 1 sprained ankle)	3
2. Reported illness	9
3. Subject refused to continue in project	2
4. Excluded from school 30 days or longer	2
5. Transferred to another school - social problem	3
6. Transferred to another school - family moved	15
7. School personnel unable to locate child and/or explain absence	10

The "drop-out" rate for the project was higher, according to the school principal, than the estimated 30 percent attrition rate for the total school population during a given school year. The larger percentage of "drops" occurred within the control group cells. Although new students were periodically added to replace "drops", no attempt was made to compare their performances with those original members of the experimental groups. Table 3 shows the final distribution of subjects across treatment groups.

The degree to which the drop-out rate of Ss reflected the trend of school attendance in special education classes at Carver is uncertain. It should be noted that teachers continued to report that classroom attendance of those classes constituting the experimental groups was notably higher on "tutoring" days.

A stepwise multiple regression was run using the child's grade level * and his total number of treatment hours in an attempt to predict his scores on the CTBS and the Gates subtests. The results showed that these variables, when used as predictors of reading gains as measured by the CTBS, were very poor predictors. It would appear therefore, that in relation to those abilities measured by the reading tests selected, the pre-test scores provided the most reliable prediction of the child's progress and gain.

TABLE 3

DISTRIBUTION OF Ss ENROLLED AT CONCLUSION OF PROJECT

	EMR		Transition	
Treatment	Original	Final	Original	Final
Tutorial T_1	E_1 24	17	E_3 13	8
Resource T_2	E_2 24	15	E_4 13	10
Traditional T_3	C_1 24	10	C_2 12	6

Total number of subjects enrolled in project

October 1, 1971 to June 1, 1972

66 of the original 110 students remained in

school for entire year.

DISCUSSION AND RECOMMENDATIONS

As reported, there was not a significant difference between the performances of the two experimental treatment groups. It was hypothesized, prior to the beginning of the project, that subjects receiving programmed instruction would out-perform subjects receiving one-to-one tutoring. However, it was observed very early in the investigation that tutors were far more committed to tutoring sessions than to those periods during which they utilized programmed materials. The level of personal involvement became apparent upon observation of the quality of innovative planning for the tutoring sessions. Tutors developed highly stimulating math, science, and homemaking units to teach reading on a practical and functional level.

On the other hand, tutors tended to devote less time and care to planning sessions with programmed materials. Graduate Assistants intervened most often in the Resource Lab because of carelessly selected materials that were often inappropriate for a given child. Though difficult to document statistically, continuing observation of tutor personnel revealed a generalized "feeling" or attitude that the utilization of programmed materials required a minimum level of preparation by the teacher.

The findings of no statistical difference between EMR and transition students were indeed significant. The regular class instruction for the transition pupil included small group instruction in reading and math that was provided by Behavioral Research Lab (Sullivan & Associates). It had been assumed by this investigator and the regular teachers that the transition children would perform better than other Ss. No attempt was made to explain their posttest performances. But it does suggest the need for a more thorough investigation of the transition

child's academic progress. The results of this comparison also indicate the need for a larger sample to re-investigate the differences between EMR's and transitional pupils.

Another interesting observation regarding this investigation relates to the ethnic background of the tutors. Only four of the fifty-nine tutors were Black, eight were Oriental, and one Mexican-American. At the onset of the project, many students refused to work with "white" tutors. Six tutors asked to drop the class during the first week of instruction, Fall quarter. However, by October 26th, 1971, the date pre-testing was completed, all requests for changes because of racial differences were withdrawn by both tutors and subjects. By December, the end of the first quarter of tutoring, children and tutors were exchanging gifts, many of which children had made themselves, and "tearful" goodbyes. This most incredible final session prompted a ruling by the project director that tutors could not return to visit during successive quarters. (It should be noted that recurrent visits by former tutors continued to present problems for project staff members.)

The assumed problems relating to racial-cultural differences failed to materialize as an important variable in predicting reading gains.

The most fascinating observation of the project staff relates to the attitude changes demonstrated by tutors. Staff members did not anticipate the level of involvement with children that later developed. Tutors spent time on weekends and after school with the child. One tutor spent several Sunday afternoons at the Roller Derby games with both the child and the parents. She later developed an entire reading program around the people and events important to roller derby. The subject involved demonstrated more dramatic growth than other subjects. She progressed from non-reading and learning of alphabet names and sounds to first grade reading as measured on CTBS. However, she could read more advanced material when related to roller derby.

Tutors visited parents in the community, personally called children following an absence and corresponded by mail with the child between tutoring sessions. Having lunch with children, rather than teachers, during lunch period became a common occurance.

The social changes of the children became apparent to observers. Not only was attendance generally high each day, but the request by other children to be placed on a waiting list for program entry continued to grow. Management problem for the Graduate Assistants was the removal of boys who repeatedly "cut" other classes to spend extra time in the tutoring lab. One seventh grade boy was excluded from school, yet he attended tutoring each day, for two weeks before the staff was informed regarding his exclusion. Another girl, excluded from classes for several weeks, continued to come to school twice weekly to attend tutoring sessions.

One of the three boys transferred to another school because of "social" problems, regularly "cut" his assigned MR classes. On his scheduled tutoring days he had perfect attendence. His emotional committment to the program is reflected in the following story that he dictated for a language experience reading lesson:

Bad Brothers and Sisters at Carver

by Ray Estes

All Black people mean something. Only if they stop laying down and get up and do something about it. Especially the black sisters and brothers of Carver, and help the rest of us up.

By laying down, I mean we should not lay down on the job. We have to learn to read before we can be real. Reading is everything. You can't do nothing unless you can read. We should go to school to get an education.

Education means communication. If you can read and write you can converse with Presidents. You have to read to pass a driving test and read signs.

Even if you have good clothese on the outside, you haven't got anything on the inside unless you can read.

It is important to learn so we can help each other!!!!!

It is notable that only two of 110 subjects requested that they be dropped from the project. Both were transition students with reading test scores above the third grade level.

An attempt to document the less definitive changes of attitude, for subjects and tutors, resulted in the accumulation of approximately twelve hours of video-tape recordings. This material is presently being edited for the compilation of one half-hour presentation of the project; its focus and its impact.

A serious weakness of this pilot investigation was the selection of test instruments to document reading gains. Currently, an appropriate reading test for illiterate adolescents does not exist. The CTBS was selected because of its use by Los Angeles City School counselors working in south central Los Angeles. However, the use of graded achievement tests for educable mentally retarded children is of course open to considerable debate.

It became clear during the early weeks of the project that teachers needed to collect other types of information to facilitate a more accurate assessment of the individual child's functioning level. The decision was made to begin collecting periodic samples of Ss writing ability. Consequently, those subjects receiving tutoring (T_2) were asked to write simple narratives in response to standardized pictorial samples. The final writing samples for each subject collected in May, were then read and rated by three teachers not involved in the project on a scale of 1-5. Ratings were based on the following four criteria:

1. Clarity of ideas
2. Logical sequence
3. Completed ideas
4. Fluency of ideas

However, when rater scores were used as another variable for predicting reading gains, the results showed very poor correlation between rater scores and CTBS scores.[1] Rater scores also proved to be very poor predictors of gain scores. It was apparent that the need to secure additional assessment information posed an immediate problem for future investigations of this nature. It is strongly recommended that professional personnel set into motion the organizational networks necessary to begin developing appropriate assessment materials for academically handicapped minors.

1. Proportion of variance in dependent variable, CTBS scores, accounted for by independent variable, rater scores, revealed a correlation of .013 ($F = .71$, $df = 9, 12$, P .69). F value for test of hypothesis of no association between dependent and independent variables was 1.46 ($df = 27, 30$, P 0.16). It was assumed that any variance was therefore due to pupil's ability to read rather than grade level, total number of treatment hours, or ability to write.

IMPLICATIONS

The preponderance of documented research suggests that no single method of teaching reading is clearly superior. One must therefore conclude that the reading gains demonstrated by subjects in this investigation are attributable to other factors. Individualized reading instruction was unique to the application of each of the methodologies applied during this study. Tutors never worked with more than two subjects during a single session; the ratio was only two-to-one during a limited few sessions in the resource lab only. Thus it was assumed that reported gain scores were in large part of a reflection of the eight months of individual attention. Additionally, the absence of markedly different performances between groups suggests that perhaps the individual support of another human being may have been as beneficial as the assemblage of elaborate machinery and accompanying materials.

The implications to school personnel providing programs for mentally retarded minors are clear. If individual reading instruction, even when limited to twice weekly, leads to observable reading progress then it is critical to begin utilizing additional personnel to aid classroom teachers. This additional help need not be highly paid, skilled personnel. Cost should not be a major factor in deciding the efficacy of instituting a support program that includes individualized reading instruction. There is a wealth of volunteer talent among parents, college students, and other more capable public school students who are intellectually normal. Tutors for this project were unpaid volunteers working for "credit" only in a field experience college lab. Grades were not given for the course. Clearly the motivation for the tutors became the less visable indicators of pupil progress.

By utilizing volunteer tutors, the cost factor of replicating aspects of this project are considerably reduced. It should be noted that pre-entry training of tutors was completed in 24 hours over a two week period.

Perhaps the most impelling implication of this study is best summarized by the subject who wrote:

> "Even if you have good clothese on the outside, you haven't got anything on the inside unless you can read."

All of the subjects involved in this investigation were economically "poor" black pupils. Obviously great care must be exercised in generalizing these findings to dissimilar populations. Nevertheless, the continued high level of motivation on the part of the subjects indicated a remarkable level of committment from them.

Of 110 disadvantaged inner-city black children receiving reading instruction, with the exception of <u>two</u> intellectually normal children, all of those remaining in the school attendance area continued in the project on a voluntary basis. This, beyond question, was the most important finding of the project. Disadvantaged black children with an accumulation of years of reading failure were vitally concerned with their reading disability.

Of significance to educators is the realization that children <u>are</u> willing to make an impressive committment to a program designed specifically to meet their unique learning needs.

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